

IN THE UNITED STATES DISTRICT COURT  
FOR THE NORTHERN DISTRICT OF CALIFORNIA

TESSENDERLO KERLEY, INC.,

No. C 11-04100 WHA

Plaintiff,

v.

**TENTATIVE CLAIM  
CONSTRUCTION ORDER**

OR-CAL, INC.,

Defendant.

**INTRODUCTION**

The parties may critique this *tentative* claim construction order at the August 8 hearing. In this patent infringement action involving horticulture technology, the parties seek construction of three terms found in two asserted patents.

**STATEMENT**

Plaintiff Tessenderlo Kerley, Inc. and defendant Or-Cal, Inc. are competing manufacturers of sun protectants for crops. TKI asserts infringement of United States Patents 6,110,867 and 6,464,995, both of which claim methods for utilizing finely divided particulate materials to enhance horticulture.

The '867 patent — filed in 1997, issued in August 2000, and reissued after reexamination in 2006 — disclosed examples of using calcined kaolin, a particulate material, to increase carbon dioxide assimilation in a few different plant species. Claim 1 is a representative claim (col. 9; reexamination certificate col. 1):

1 A method for enhancing the photosynthesis of  
2 horticultural crop by increasing carbon dioxide  
3 assimilation of said horticultural crop which  
4 comprises

5 applying to the surface of said horticultural  
6 crop an effective amount of one or more  
7 highly reflective particulate materials, said  
8 particulate materials

9 being finely divided, and

10 wherein the particles as applied  
11 allow for the exchange of gases on  
12 the surface of said crop and

13 the finely divided particulate  
14 materials have a median individual  
15 particle size below about 3 microns.

16 The limitation of “increasing carbon dioxide assimilation” was added during reexamination to  
17 overcome a prior-art reference, *Moreshet et al.*, “Effect of Increasing Foliage Reflectance on  
18 Yield, Growth, and Physiological Behavior of a Dryland Cotton Crop,” 19 CROP SCIENCE 863  
19 (1979).

20 The '995 patent, a related patent arising out of the same parent application as the '867  
21 patent, also claimed the use of particulate materials to enhance horticultural effects via a similar  
22 mechanism. Claim 23 is a representative claim (col. 12):

23 A method for enhancing the horticultural effect of  
24 horticultural substrates selected from the group  
25 consisting of fruits, vegetables, trees, flowers,  
26 grasses, roots, and landscape and ornamental plants  
27 which comprises

28 applying a slurry comprising water,

a surfactant, and

one or more particulate materials, selected  
from the group consisting of calcium  
carbonate, hydrous kaolin, calcined kaolin  
and mixtures thereof,

to the surface of said substrate to form a  
membrane comprised of one or more  
particulate layers and the surfactant,

said layers comprising one or more  
particulate materials,

1                   said particulate materials being finely  
2                   divided, and

3                   wherein said membrane allows for the  
4                   exchange of gases on the surface of said  
5                   substrate.

6                   TKI alleges that Or-Cal infringed by manufacturing sun protectant products with calcium  
7                   carbonate particles.

### 8                   **ANALYSIS**

9                   Courts must determine the meaning of disputed claim terms from the perspective of a  
10                  person of ordinary skill in the pertinent art at the time the patent was filed. *Chamberlain Group,*  
11                  *Inc. v. Lear Corp.*, 516 F.3d 1331, 1335 (Fed. Cir. 2008). While claim terms are generally given  
12                  their ordinary and customary meaning, the patent's specification is always highly relevant to the  
13                  claim construction analysis. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–15 (Fed. Cir. 2005).  
14                  Finally, courts also should consider the patent's prosecution history, which “can often inform the  
15                  meaning of the claim language by demonstrating how the inventor understood the invention and  
16                  whether the inventor limited the invention in the course of prosecution, making the claim scope  
17                  narrower than it would otherwise be.” *Phillips*, 415 F.3d at 1317 (internal quotations omitted).  
18                  Where the patentee has unequivocally disavowed a certain meaning to obtain his patent, the  
19                  doctrine of prosecution disclaimer attaches and narrows the ordinary meaning of the claim  
20                  congruent with the scope of the surrender. *Omega Engineering, Inc. v. Raytek Corp.*, 334 F.3d  
21                  1314, 1324 (Fed. Cir. 2003).

22                  These components of the intrinsic record are the primary resources in properly construing  
23                  claim terms. Although courts have discretion to consider extrinsic evidence, including  
24                  dictionaries, scientific treatises, and testimony from experts and inventors, such evidence is “less  
25                  significant than the intrinsic record in determining the legally operative meaning of claim  
26                  language.” *Phillips*, 415 F.3d at 1317.

#### 27                  **1. THE '867 PATENT: “EFFECTIVE AMOUNT.”**

28                  The term, “effective amount,” is found in independent claims 1 and 38 of the '867 patent.  
The parties dispute whether the term should be construed broadly to mean any desired amount  
(Or-Cal's position) or more narrowly to mean the amount sufficient to improve photosynthesis

by increasing carbon dioxide uptake (TKI's position). Neither party has explained *why* their proposed construction would be relevant to issues of invalidity or infringement, and this Court fails to see why this dispute matters. Nonetheless, the Court will construe the disputed term, as requested.

The '867 patent specification, at two different points, defines "effective amount" as the amount sufficient to enhance photosynthesis (col. 4):

The surface of said horticultural crop is treated with an amount of one or more highly reflective particulate materials that is effective in enhancing photosynthesis of the horticultural crop.

\* \* \*

The the [sic] particle treatment may be applied as one or more layers of finely divided particulate material. The amount of material applied is within the skill of one of ordinary skill in the art. The amount will be sufficient [sic] to improve photosynthesis of the crop to which these particles are applied.

The prosecution history also supports defining "effective amount" narrowly to mean the amount sufficient to enhance photosynthesis. During reexamination, the PTO examiner's "Statement of Reasons for Patentability" stated that "the only proper interpretation of 'an effective amount' is an amount that is effective to enhance photosynthesis of horticultural crops by increasing carbon dioxide assimilation of said crops" (Dkt. No. 108-6 at 7).

Or-Cal actually *agrees* that the "effective amount" is the amount that produces the desired result of enhancing photosynthesis by increasing carbon dioxide assimilation (Or-Cal Br. 14–15). Or-Cal's only argument in opposition of TKI's proposed construction is that it would be redundant because the limitation of "enhancing photosynthesis by increasing carbon dioxide assimilation" is specified elsewhere in the claim. Or-Cal's redundancy argument is not enough to reject TKI's proposed construction, which is *admittedly accurate*. A purpose of claim construction is to remove ambiguity. Here, construing the term "effective amount" to mean Or-Cal's broader "desired result" would add ambiguity as to the patentee's intended, narrower meaning, which was "the amount sufficient to enhance photosynthesis by increasing carbon dioxide uptake." Whether this is enabled by the disclosure is a matter for another day.

Accordingly, the term “effective amount” shall be construed to mean “an amount that is sufficient to enhance photosynthesis of horticultural crops by increasing carbon dioxide assimilation of said crops.”

**2. THE '867 PATENT: “PARTICLES AS APPLIED ALLOW FOR THE EXCHANGE OF GASES ON THE SURFACE OF SAID CROP.”**

This term, “particles as applied allow for the exchange of gases on the surface of said crop,” is found in independent claims 1 and 38 of the '867 patent. TKI proposes the following construction: “there is gas exchange on a treated surface which includes stomata and the particles do not materially affect gas exchange such that stomatal conductance is not materially reduced.” Or-Cal proposes the following construction: “the particles are applied in a manner that allows for transpiration without hindering passage of water vapor, oxygen and CO<sub>2</sub>.” The proposed constructions differ in three aspects: (1) the parties dispute whether the claimed particles have *no* affect on gas exchange versus, less restrictively, do not *materially reduce* gas exchange, (2) the parties dispute whether the claimed particles reduce stomatal conductance, and (3) the parties dispute whether the claimed particles must be applied to a surface with stomata. These disputes are arguably relevant to invalidity contentions.

**A. Materially Reduce Gas Exchange.**

The “allow for the exchange of gases” term means that the claimed particle treatment does not materially reduce gas exchange on the crop. In the patent specification’s “Detailed Description of the Invention” section, the patentee expressly stated that application of the particles does not materially reduce gas exchange:

[T]his invention relates to horticultural crops wherein the surface of said crop is treated with one or more particulate materials. This treatment *should not materially affect the exchange of gases* on the surface of said crop. The gases which pass through the particle treatment are those which are typically exchanged through the surface skin of living plants. Such gases typically include water vapor, carbon dioxide, oxygen, nitrogen and volatile organics.

(col. 4) (emphasis added). Moreover, the prosecution history also supports this interpretation. During reexamination, the patentee argued that his invention was distinguishable over the prior

1 art Moreshet reference because his claimed invention “allow[ed] for the exchange of gases from  
2 the plant surface” whereas the particles in Moreshet reduced carbon dioxide uptake, reduced  
3 transpiration of water vapor, and reduced stomatal conductance (Dkt. No. 108-5). Logically, the  
4 particles used in Moreshet still *allowed* for some gas exchange because the plants would have  
5 died otherwise. Therefore, the patentee’s argument on reexamination, which the PTO examiner  
6 ultimately accepted, was that the particles in Moreshet materially reduced gas exchange (but still  
7 allowed some gas exchange) while the claimed ’867 invention did not materially reduce gas  
8 exchange (Dkt. No. 108-6).

9 In its opposing brief, Or-Cal argues that adding the “materially reduce” qualifier would  
10 inject ambiguity into the claim because the patent does not define or describe what reduction is  
11 or is not material. While this may be true, it is nonetheless possible that one of ordinary skill in  
12 the art would have already understood what a material effect on gas exchange meant. For  
13 example, a skilled artisan may have understood that a ten percent decrease in carbon dioxide  
14 exchange rate would have adversely affected horticultural effects (such as “improved color,  
15 smoother fruit surface, increased soluble solids, e.g., sugars, acidity, etc., reduced bark and fruit  
16 cracking, reduced plant temperature and reduced russetting) but that a one percent decrease  
17 would not have. This is an issue of patent validity that should be argued in the context of  
18 enablement, indefiniteness, and written description; but this issue does not change the patentee’s  
19 express, unambiguous definition of the term. Because the patent’s definition is unambiguous,  
20 this is not a situation where a claim should be construed to sustain their validity. *See Phillips v.*  
21 *AWH Corp.*, 415 F.3d 1303, 1327–28 (Fed. Cir. 2005) (en banc).

22 **B. Interference with Stomatal Function.**

23 The “allow for the exchange of gases” term also means that stomatal conductance is not  
24 materially reduced. This is strongly supported by the prosecution history. During  
25 reexamination, in order to distinguish the prior art Moreshet reference, the patentee expressly  
26 argued that the ’867 invention did “not interfere with stomatal function” and contrasted this  
27 characteristic with the Moreshet reference, where the particles “interfere[d] with stomatal  
28 function resulting in reduced CO<sub>2</sub> uptake” (Dkt. No. 108-5). The PTO examiner also noted this

distinction in an interview summary: “[the patentee] showed evidence of an experiment in which Moreshet’s 25% kaolin reduced CO<sub>2</sub> uptake and interfered with stomatal functions, whereas 6% kaolin did not interfere with stomatal function” (Dkt. No. 108-7). In his “Statement of Reasons for Patentability,” the PTO examiner again noted that the invention’s effect on stomatal function was a distinguishing aspect: “[T]he experimental result reported by [the patentee] demonstrated that the 25% kaolin as applied [sic] to the apple leaves interfered with stomatal function resulting in reduced carbon dioxide uptake” (Dkt. No. 108-6 at 7). Thus, the intrinsic record is clear that “allow for exchange of gases” means that the claimed particles did not materially reduce stomatal conductance.<sup>1</sup>

### C. Application to a Surface with Stomatas.

“[T]he surface of said crop” term must mean at least one surface with stomatas. As an initial matter, it is undisputed that gas exchange in crops occurred on a surface with stomatas (Or-Cal Br. 3; *see also* col. 7). The ’867 patent claims a method wherein the particles are “apply[ed] to *the surface* of said horticultural crop” and “wherein the particles as applied allow for the exchange of gases on *the surface* of said crop” (col. 9). The use of a definitive article, ‘the,’ in the same claim sentence strongly suggests that the particles are applied to *the* surface where gas exchange occurs. Therefore, the particles are necessarily applied to a surface with stomatas.

The prosecution history also supports this interpretation. As discussed, during reexamination, the patentee expressly differentiated his invention from the prior art Moreshet reference by arguing that his method of applying particles “allow[ed] for the exchange of gases *from the plant surface*” whereas the particle coating in Moreshet reduced water transpiration, reduced carbon dioxide, and reduced stomatal conductance (Dkt. No. 108-5). The patentee presented experimental results showing that in Moreshet, where 25% kaolin was applied to all surfaces of apple leaves by applying the spray “over the top of the canopy from a standard, tractor-mounted boom sprayer at a rate of approximately 400 liters/ha,” there was reduced gas

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<sup>1</sup> The patentee used the terms “stomatal conductance” and “stomatal function” interchangeably (*see* Dkt. No. 108-5 at 5, 7).

exchange by the stomatas (Dkt. Nos. 108-7, 78-1). For Moreshet's 25% kaolin treatment to reduce gas exchange, including carbon dioxide uptake, the kaolin *must have* been applied to a surface with stomata; otherwise, the kaolin would not have interfered with gas exchange. With these experimental results, the patentee argued, and the PTO examiner agreed, that the '867 invention was an improvement over Moreshet because 6% kaolin had improved gas exchange compared to 25% kaolin when applied to all surfaces of leaves, including a surface with stomata.

Or-Cal's strongest counterargument is from the '867 patent's specification, where there is language that the claimed particles do not have to be applied to the *under surface* of a crop (col. 4)(emphasis added):

The surface of said horticultural crop is treated with an amount of one or more highly reflective particulate materials that is effective in enhancing photosynthesis of the horticultural crop. The treatment coverage of said crop is within the skill of the ordinary artisan [sic]. Less than full crop coverage is within the scope of this invention and can be highly effective, for example, *neither the under surface of the crop (that which is not exposed directly to the source of light) need be treated by the method of this invention* nor must the upper surface of the crop be completely covered; although full substrate coverage can provide additional benefits such as effective disease control, smoother fruit surface, reduced bark and fruit cracking, and reduced russeting.

However, Or-Cal's argument — that the above-quoted passage means that the claimed particles need not be applied to a surface with stomata — is unpersuasive. True, it is undisputed that the under surface of some crops (such as apples and peaches) have more stomata than the upper surface. But importantly, Or-Cal's own expert admits that even these crop can have *some* stomata on the upper surface (Jubert Decl. ¶¶ 20–21). Moreover, Or-Cal's expert also admits that some plants, such as bean plants (which is arguably encompassed by the patent), have similar amounts of stomata on both surfaces (Jubert Decl. ¶ 20). Therefore, simply because the specification states that the claimed particles do not need to be applied to the under surface, it does not necessarily follow that the particles do not need to be applied to a surface with stomata.

Accordingly, the term “the particles as applied allow for the exchange of gases on the surface of said crop” shall be construed as “there is gas exchange on a treated surface with



1 stomata and the particles do not materially reduce gas exchange such that stomatal conductance  
2 is not materially reduced.”

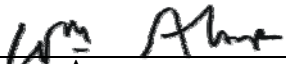
3 **3. THE '995 PATENT: “SAID MEMBRANE ALLOWS FOR THE**  
4 **EXCHANGE OF GASES ON THE SURFACE OF SAID SUBSTRATE.”**

5 Both parties agree that construction of the '995 patent term, “said membrane allows for  
6 the exchange of gases on the surface of said substrate,” should mimic the already-construed '867  
7 term, “particles as applied allow for the exchange of gases on the surface of said crop.”  
8 Therefore, the '995 patent term shall also be construed to mean “there is gas exchange on a  
9 treated surface with stomata and the particles do not materially reduce gas exchange such that  
10 stomatal conductance is not materially reduced.”

11 **CONCLUSION**

12 The parties may critique the above tentative claim constructions at the August 8 hearing.  
13 This will be an opportunity for the parties to focus solely on their most cogent critique, not to  
14 rehash every point made in the briefs.

15  
16 Dated: July 26, 2012.

17   
18 WILLIAM ALSUP  
19 UNITED STATES DISTRICT JUDGE  
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